IN THE CLAIMS:

Please cancel Claim 24, without prejudice or disclaimer of subject matter.

Please amend Claims 16, 25-27, 29, 30, 31 and 37, as indicated below. The following is a complete listing of claims and replaces all prior versions and listings of claims in the present application:

Claims 1-16 (Canceled).

16.(Currently Amended) A method for encoding [[n]] two-dimensional data f(m, n) including m x n elements to be encoded[[,]] into [[an]] a plurality of adaptive bases, each ~~of which includes m data~~ adaptive base including a one-dimensional array variable X(m) storing m data and a one-dimensional array variable Y(n) storing n data, comprising:

(a) an initializing step of allocating an i-th adaptive base in a memory and initializing the i-th adaptive base by setting a random value into the one-dimensional array variable $X_i()$ and the one-dimensional array variable $Y_i()$, where "i" is "1" in an initial stage;

(b) a reconstruction step of reconstructing two-dimensional data f'(m, n) [[n data]] including m x n elements from the ~~first to i-th~~ adaptive [[base]] bases represented by $\{X_1(), Y_1()\}, \ldots, \{X_i(), Y_i()\}$ using a predetermined conversion;

(c) an error calculation step of calculating an error between ~~said n data~~ two-dimensional data f(m, n) to be encoded and [[said]] the reconstructed [[n data]] two-dimensional data f'(m,n) using a predetermined error evaluation function;

(d) a correction step of correcting [[said]] the i-th adaptive base by correcting the one-dimensional array variable $X_i()$ and the one-dimensional array variable $Y_i()$ based on said error calculated in said step (c); [[and]]

(e) a step of determining ~~whether or not~~ if said error calculated in said error calculation step (c) has converged;

(f) a step of, if it is determined in said step (e) that said error has not converged, repeatedly performing the processing of steps (b)- (e);

(g) a step of, if it is determined in said step (e) that said error has converged, determining if said error is larger than a predetermined admissible error;

(h) a step of, if it is determined in said step (g) that said error is not larger than the predetermined admissible error, outputting array variables $\{X_1(), Y_1()\}, \ldots \{X_i(), Y_i()\}$ of the first to i-th adaptive bases stored in the memory as encoded data; and

(i) a step of, if it is determined in said step (g) that said error is larger than the predetermined admissible error, increasing the variable "i" to prepare a new adaptive base and repeatedly performing processing after said step (a)

~~wherein correction in said correction step is repeated until it is determined that said error has converged~~.

Claims 17-24 (Canceled).

25.(Currently Amended) The method according to claim 16, wherein the predetermined error evaluation function calculates a total of [[the]] a second power of the error between each of the elements of the data f(m, n) to be encoded ~~or the difference data to be~~

~~encoded~~ and each of the elements of the reconstructed data f'(m, n) ~~or the element reconstructed data~~.

26. (Currently Amended): The method according to claim 16, wherein in said correction step (d), the one-dimensional array variable $X_i()$ and the one-dimensional array variable $Y_i()$ of the i-th adaptive bases ~~or the one-dimensional adaptive base group is~~ are corrected so as to reduce the error.

27. (Currently Amended): The method according to claim 16, wherein in said correction step (d), the correction amount for the i-th adaptive base ~~bases or the one-dimensional adaptive base group~~ is obtained by multiplying a predetermined coefficient to a partial differentiation coefficient of element to be corrected in the i-th adaptive base ~~or the one-dimensional adaptive base group in the predetermined error evaluation function~~.

28. (Previously Presented): The method according to claim 27, wherein the predetermined coefficient is a negative constant.

29. (Currently Amended): The method according to claim 27, wherein the predetermined coefficient is a negative value and is changed so as to approximate it to "0" in stages.

30.(Currently Amended) The method according to claim 16, wherein the data f(m, n) to be encoded is divided [[for]] into at least one [[a]] unit of a predetermined range, and the encoding is made for each [[the]] predetermined range.

31.(Currently Amended) The method according to claim 16, wherein the data f(m, n) to be encoded is divided [[for]] spatially into at least one [[a]] unit of a predetermined space, and the encoding is made for each predetermined space ~~range~~.

Claims 32-36 (Canceled).

37.(Currently Amended) A encoding apparatus ~~which encodes n~~ for encoding two-dimensional data f(m, n) including m x n elements ~~to be encoded~~ into adaptive bases, each adaptive base including a one-dimensional array variable X(m) storing m data and a one-dimensional array variable Y(n) storing n data ~~base which includes m data~~, comprising:

initializing means for allocating i-th adaptive base in a memory and initializing the i-th adaptive base by setting random values into the one-dimensional array variable $X_i()$ and the one-dimensional array variable $Y_i()$, where "i" is "1" in an initial stage;

reconstruction means for reconstructing two-dimensional data f'(m, n) [[n data]] including m x n elements from the first to i-th adaptive [[base]] bases represented by $\{X_1(), Y_1()\}, \ldots, \{X_i(), Y_i()\}$, using a predetermined conversion;

error calculation means for calculating an error between ~~said n data~~ the f(m, n) data to be encoded and [[said]] the reconstructed [[n data]] f'(m, n) data by using a predetermined error evaluation function;

correction means for correcting [[said]] the i-th adaptive base by correcting the one-dimensional array variable $X_i()$ and the one-dimensional array variable $Y_i()$ based on [[said]] the error calculated by said error calculation means; [[and]]

first determination means for determining ~~whether or not said~~ if the error calculated by said error calculation means has converged,

first control means for, if said first determination means determines that the error has not converged, repeatedly controlling said reconstruction means, error calculation means, correction means and first determination means to perform each processing;

second determination means for, if said first determination means determines that the error has converged, determining if the error is larger than a predetermined admissible error;

output means for, if said second output means determines that the error is not larger than the predetermined admissible error, outputting array variables $\{X_1(),Y_1()\},...\{X_i() , Y_i()\}$ of the first to i-th adaptive bases stored in the memory as encoded data; and

second control means for, if said second determination means determines that the error is larger than the predetermined admissible error, increasing the variable "i" to prepare a new adaptive base and repeatedly controlling said initializing means, reconstruction means, error calculation means, correction means, first determination means, first control means, second determination means and output means to perform each processing

~~wherein correction of said correction means is repeated until it is determined that said error has converged~~.

Claims 38-46 (Canceled).